

## REMARKS

Claims 1, 3-9, and 11-20 stand rejected under 35 U.S.C. 112, first paragraph, and claim 4 stands rejected under 35 U.S.C. 102(e) as unpatentable over Hsieh (US App. 2004/0176062).

It is noted that any claim amendments are made to merely clarify the language of each claim, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

For the reasons stated below, Applicant traverses these rejections.

### I. THE 35 U.S.C. 112, FIRST PARAGRAPH REJECTIONS

In April and June of 2005, Applicant and the Examiner discussed some of the issues raised in the Examiner's current rejection under 35 U.S.C. 112, first paragraph. Applicant believes the current amendments will clarify the issues raised as to what Applicant claims as the "threshold" that is defined or set to compare with the difference of the running mean from the duration sequence and the duration of a single frame of the incoming signal to the VAD device. On pages 12-13 (paragraphs [0028-0029] of the specification, this threshold is set out as a way to make a VAD decision of whether an incoming frame has voice or noise. Some thresholds may be set as "1" or "2" depending

on whether there is a zero amplitude change in the signal.

The method uses the threshold as a benchmark to compare the difference of duration from one frame of the signal with the mean of the summed durations of the entire signal being used.

Applicant recognizes that this response to the Examiner's Final Office Action and claim amendments are by permission of the Examiner. Based on Applicant's good-faith attempts by twice discussing this issue with the Examiner in order to clarify the claim language, and that no new matter is added to the claims, Applicant respectfully requests the Examiner to allow the current claim amendments.

## **II. THE HSIEH REFERENCE**

The Examiner alleges claim 4 is anticipated by Hsieh. Hsieh is performing a different determination than the claimed invention of searching for a tone in a signal than the claimed invention. The Examiner alleges Hsieh's step 106 corresponds to the step of calculating a zero crossing rate of a signal and step 118 corresponds to the step of comparing the maximum difference with the threshold. Hsieh is using "a zero crossing rate (ZCR) operation" to determine whether the period of signal contains speech or not. Hsieh's disclosure can do this because it already knows the range of frequency within which speech is to be expected (6.5 to 250Hz in paragraph 28) for a walkie talkie. In the present invention, the frequency range for speech is unknown and the system does not use the ZCR alone to determine if speech is present.

The threshold used by Hsieh in step 118 is used to determine “whether or not the speech signal uses the logical channel” (para. 27), which is different than using the threshold to determine speech. Claim 4 recites summing the durations of the incoming signal between each zero crossing point and comparing a mean of the sum to a single frame of the incoming signal. The difference between the single frame and the mean is compared to the threshold to determine whether a speech tone is present in the single frame.

The Examiner correctly noted that Hsieh fails to provide a method for calculating a ZCR. Further, regarding the rejection to claim 4, Hsieh neither teaches nor suggests how to perform its method by calculating the ZCR when the signal fails to cross the zero line. The claimed invention addresses this scenario by “defining a threshold for zero amplitude change of a signal; where a portion of said signal does not contain a zero crossing point,” and then “defining a range of said signal that contains a zero crossing point,” as recited in claim 4. In Hsieh’s method, if the signal does not cross the zero point, it counts it as not containing speech (see paragraph 21). In the present invention, the signal sample itself is important in order to detect a tone so that if the signal does not contain a zero crossing, the range of the signal is expanded until a zero crossing is included. This is neither taught nor suggested by Hsieh.

In [0021], Hsieh applies a ZCR operation to the sample to determine a period of speech and in 108 detects a signal energy and compares to an energy value to determine if a signal period is valid. However, this fails to disclose anything about what

happens where there is no zero crossing in the signal. In fact, Hsieh does not detect for a signal without a zero crossing so that a range can be re-defined with a zero crossing in it, as disclosed in claim 4.

Again, Applicant has amended claim 4 in order to clarify the claim language. Based on the fact that no new matter is added to the claims and Applicant's good-faith attempts to clarify the language based upon the conversations with Examiner in 2005, Applicant respectfully requests the Examiner to allow the present amendments and pass the claims to issue. Based on the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

## **CONCLUSION**

In view of the foregoing, Applicant submit that all the claims presently pending in the Application are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above Application to issue at the earliest possible time.


Should the Examiner find the Application to be other than in condition for allowance, the Examiner may contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

Appl. No. 10/652,483  
Amendment to 04/05/2006 Final Action

The commissioner is hereby authorized to charge any fees associated with this communication to Client's Deposit Account No. 20-0668.

Respectfully Submitted,

Date: 6-5-06

  
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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: the Commissioner for Patents, United States Patent and Trademark Office, PO Box 1450, Alexandria, VA 22313-1450 on June 5, 2006.

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Kendal M. Sheets Date